

INTERMEDIATE PART-II (12th CLASS) (SPECIAL EXAMINATION)
PHYSICS PAPER-II

TIME ALLOWED: 2.40 Hours

SUBJECTIVE

MAXIMUM MARKS: 68

NOTE: Write same question number and its part number on answer book,
as given in the question paper.

SECTION-I**2. Attempt any eight parts.****8 × 2 = 16**

- (i) What informations we get from the map of electric field lines?
- (ii) Electric lines of force never cross each other. Why?
- (iii) If a point charge of mass m is released in a non-uniform electric field with field lines pointing in the same direction. Will it make rectilinear motion?
- (iv) Upon what factors electric flux depends?
- (v) Draw diagram of saw tooth voltage waveform and explain it.
- (vi) Differentiate between sensitive and dead beat galvanometer.
- (vii) Why the voltmeter should have a very high resistance?
- (viii) How can a current loop be used to determine the presence of a magnetic field in a given region of space?
- (ix) An emf of $5.6V$ is induced in a coil while the current in a nearby coil is decreased from $100 A$ to $20 A$ in $0.02 s$. What is the mutual inductance of the two coils? If the secondary has 200 turns, find the change in flux during this interval.
- (x) Why are split rings used in DC generator in place of slip rings?
- (xi) How would you position a flat loop of wire in a changing magnetic field so that there is no emf induced in the loop?
- (xii) Show that ϵ and $\frac{\Delta\phi}{\Delta t}$ have the same units.

3. Attempt any eight parts.**8 × 2 = 16**

- (i) Do bends in a wire affects its electrical resistance? Explain.
- (ii) A potential difference is applied across the ends of a copper wire. What is the effect on the drift velocity of free electrons by
 - (i) increasing the potential difference
 - (ii) decreasing the length and the temperature of wire
- (iii) What are non Ohmic devices? Give any two examples.
- (iv) How the reception of a particular radio station is selected on your radio set?
- (v) Name the device that will
 - (a) permit flow of direct current but oppose the flow of alternating current
 - (b) permit flow of alternating current but not the direct current
- (vi) What is Choke? Why it is used in A.C circuit?
- (vii) Write a short note on Superconductors.
- (viii) What is meant by Paramagnetic and Ferromagnetic substances? Give examples for each.
- (ix) Define Coercive Current.
- (x) In a certain circuit, the transistor has a collector current of $10 mA$ and a base current of $40 \mu A$. What is the current gain of the transistor?
- (xi) What is the net charge on a n -type or p -type substances?
- (xii) Why ordinary silicon diodes do not emit light?

4. Attempt any six parts.**6 × 2 = 12**

- (i) Distinguish between special theory of relativity and general theory of relativity.
- (ii) What happens to the total radiations from a black body if its absolute temperature is doubled?
- (iii) What are the measurements on which two observers in relative motion will always be agree upon?

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- (iv) What do we mean when we say that the atom is excited?
- (v) How can spectrum of hydrogen contain so many lines, whereas hydrogen atom contains one electron?
- (vi) A particle which produces more ionization is less penetrating why?
- (vii) If someone accidentally swallows an α – source and a β – source which would be the more dangerous to him?
- (viii) Define Hardons and Leptons.
- (ix) Define half life of a radioactive element. What is the relation between half life and Decay constant?

SECTION-II

NOTE: Attempt any three questions.

3 × 8 = 24

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| 5.(a) | Define Wheatstone bridge. Derive an expression for its balancing condition to measure the unknown resistance. | 5 |
| (b) | A particle having a charge of 20 electrons on it falls through a potential difference of 100 volt. Calculate the energy acquired by it in electron volts. | 3 |
| | | |
| 6.(a) | Determine the expression for the force on a current carrying conductor in uniform magnetic field. | 5 |
| (b) | The back emf in a motor is 120V when the motor is turning at 1680 rev per min. What is the back emf when the motor turns 3360 rev per min? | 3 |
| | | |
| 7.(a) | Describe the effect of capacitor in an A.C. circuit. | 5 |
| (b) | In a certain circuit, the transistor has a collector current 10mA and a base current of 40μA. What is the current gain of the transistor? | 3 |
| | | |
| 8.(a) | What is meant by strain energy? How can it be determined from the force-extension graph? | 1 + 4 |
| (b) | Find the mass defect and binding energy of the deuteron nucleus.
mass of deuteron = $3.3435 \times 10^{-27} \text{ kg}$, mass of proton = $1.6726 \times 10^{-27} \text{ kg}$
mass of neutron = $1.6749 \times 10^{-27} \text{ kg}$ | 3 |
| | | |
| 9.(a) | Write three postulates of Bohr's model of hydrogen atom and show that radii of orbits of hydrogen atom are quantized. | 5 |
| (b) | Find the energy of photon in (i) X – ray with wavelength 0.2nm
(ii) Radiowave of wavelength 100m | 3 |

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(SPECIAL EXAMINATION)

PHYSICS PAPER-II

TIME ALLOWED: 20 Minutes

MAXIMUM MARKS: 17

OBJECTIVE

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) A charge of $4C$ is placed in the field of intensity $8NC^{-1}$. The force on the charge is:
 (A) $12N$ (B) $8N$ (C) $32N$ (D) $2N$
- (2) If electric and gravitational forces on an electron balance each other, then electric field intensity will be:
 (A) $\frac{q}{4\pi\epsilon_0 r^2}$ (B) $\frac{mg}{q}$ (C) $\frac{q}{mg}$ (D) mgq
- (3) The reciprocal of resistance is called:
 (A) Conductance (B) Reactance (C) Inductance (D) Resistivity
- (4) Magnetic flux is maximum when angle between magnetic field intensity and vector area is:
 (A) 0° (B) 45° (C) 90° (D) 180°
- (5) An AVO-meter requires a battery for the measurement of:
 (A) Voltage (B) Current (C) Resistance (D) All these
- (6) One henry is equal to:
 (A) $Vs^{-1}A$ (B) VsA (C) $Vs^{-1}A^{-1}$ (D) VsA^{-1}
- (7) The assembly of iron cylinder and coils is called:
 (A) Commutator (B) Armature (C) Shaft (D) Load
- (8) A metal detector is based on:
 (A) RL circuit (B) RC circuit (C) LC circuit (D) None of these
- (9) Complete spectrum of electromagnetic waves vary from:
 (A) Low radio waves to infra red radiations (B) Microwaves to ultraviolet radiations
 (C) Visible light to gamma rays (D) Low radio waves to high energy gamma rays
- (10) Materials in which valence electrons are bound very tightly to their atoms and are not free to move are called:
 (A) Conductors (B) Insulators (C) Semiconductors (D) Superconductors
- (11) In transistor concentration of impurity is highest in:
 (A) Emitter (B) Collector (C) base (D) Both in base and collector
- (12) The open loop gain of an OP-AMP is of the order of:
 (A) 10^3 (B) 10^4 (C) 10^5 (D) 10^6
- (13) The wavelength of a 140gram ball moving at speed of $40ms^{-1}$ is:
 (A) $1.18 \times 10^{-34}m$ (B) $1.18 \times 10^{-26}m$ (C) $5.6km$ (D) $5.6m$
- (14) Radiations having energy of the order of $1MeV$ are called:
 (A) Ultra violet radiations (B) Infra red radiations (C) Micro waves (D) Gamma rays
- (15) Common red ($He - Ne$) laser emits a light of wavelength:
 (A) $632.8\mu m$ (B) $632.8nm$ (C) $632.8^\circ A$ (D) $632.8pm$
- (16) Binding energy per nucleon for isotope iron - 58 has a value of:
 (A) $6.6MeV$ (B) $7.7MeV$ (C) $8.8MeV$ (D) $9.9MeV$
- (17) Example of leptons is:
 (A) Electron (B) Proton (C) Neutron (D) Meson

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- (2) The open loop gain of an OP-AMP is of the order of:

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- (3) The wavelength of a 140gram ball moving at speed of 40 ms^{-1} is:

(A) $1.18 \times 10^{-34}\text{ m}$	(B) $1.18 \times 10^{-26}\text{ m}$	(C) 5.6 km	(D) 5.6 m
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- (4) Radiations having energy of the order of 1 MeV are called:

(A) Ultra violet radiations	(B) Infra red radiations	(C) Micro waves	(D) Gamma rays
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BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDEAT SPECIAL PART-II EXAMINATION 2020
 Name of Subject: Physics Session: Special Exam.

Q. Nos.	Paper Code 4471	Paper Code 4473	Paper Code 4475	Paper Code 4477
1	C	A	A	C
2	B	C	D	A
3	A	A	B	C
4	A	D	C	B
5	C	B	A	A
6	D	C	C	A
7	B	A	B	C
8	C	C	A	D
9	D	B	A	B
10	B	A	C	C
11	A	A	D	D
12	C	C	B	B
13	A	D	C	A
14	D	B	D	C
15	B	C	B	A
16	C	D	A	D
17	A	B	C	B
18				
19				
20				

برقیکیٹ بابت صحیح سوالیہ پرچہ امارنگ Key

ہم نے مضمون فزکس پرچہ II گروپ I سکیم فیزکس انٹرمیڈیٹ اسپیشل امتحان 2020 کا سوالیہ پرچہ انشائیہ و معروضی (Subjective & Objective) کو بنظر عمیق چیک کر لیا ہے یہ پرچہ Syllabus کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ میں کسی قسم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو اور انگریزی Version بھی چیک کر لیا ہے۔ یہ Version آپس میں مطابقت رکھتے ہیں اور Syllabus کے مطابق بھی ہیں۔ نیز اس پرچہ کی معروضی (MCQs) Key کی بابت بھی تصدیق کی جاتی ہے کہ اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔ MCQs کی "Key" کو دوبارہ بھی بغور چیک کر لیا گیا ہے۔ مزید یہ کہ ہم نے Key بنانے سے متعلق دفتر کی جانب سے تیار کردہ ہدایات وصول کر کے ان کا بغور مطالعہ کر لیا ہے اور ان کی روشنی میں Key بنائی ہے۔ نیز سب ایگزامینرز کیلئے تفصیلی ہدایات / مارنگ سکیم / Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By:

S.#	Name	Designation	Institution	Mobile No	Signature
1	Shabbir Sazib	Asso. Prof.	Govt. C. Civil Lines Multan	03017551681	
2	Kaleem Ullah	A.P	Govt. College of Science	0301-7400172	
3	Bashir Ahmad	A.P	Govt. Emerson College Multan	03006305057	

Re-Checked By ہم نے درج بالا سوالیہ پرچہ (انشائیہ + معروضی)، معروضی "Key" اور ہدایات کے حوالہ سے مکمل طور پر تسلیم کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

S.#	Name	Designation	Institution	Mobile No	Signature
1	Shahid Iqbal	Associate Prof.	Govt. Civil Lines Multan	03077360030	
2					
3					